

CLAIMS

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(a) at least about 30% of the total particulate volume is provided by abrasive particles, comprising particles of sintered sol gel alumina.

(b) friable filler particles, and

(c) a resinous bond in which the particles are mounted and held.

2. An abrasive article according to Claim 1 in which at least 10% of the volume of the abrasive particles in the article is supplied by sintered sol gel alumina particles.

3. An abrasive article according to Claim 2 in which at least 50% of the volume of the abrasive particles in the article is supplied by sintered sol gel alumina particles as in Claim 2.

4. An abrasive article according to Claim 1 in which the sol gel alumina particles are seeded sol gel alumina particles.

5. An abrasive article according to Claim 1 in which up to 70% of the volume of the abrasive particles is provided by particles of fused or sintered alumina, silicon carbide, fused or sintered zirconia, fused or sintered alumina-zirconia, diamond or CBN.

6. An abrasive article according to Claim 1 in which the friable filler particles provide from about 20 to 70% of the volume of particulate matter in the article.

7. An abrasive article according to Claim 1 in which the friable filler particles are selected from hollow bubbles of a metal oxide, an organic polymer or a glass; friable particles of a silicate or alumina silicate; and foamed or solid glass or organic polymer particles.

7. An abrasive article according to Claim 1 in which the friable filler particles are selected from aluminum oxide bubbles, zirconia oxide bubbles, glass bubbles, and vitrified alumina-silicate bubbles or pellets.

8. An abrasive article according to Claim 1 in which the resin bond is provided by a phenolic resin.

10. An abrasive article comprising:

1 (a) from about 50 to 90% by volume of the particulate content is provided by abrasive particles

4 (a) comprising from about 20 to about 100% of seeded sol gel alumina particles based on the volume of 5 particulate matter in the article sintered;

7 (b) from about 20 to about 70% of alumina bubbles based 8 the volume of particulate matter in the article; and

9 (c) a phenolic bonding resin.

11. An abrasive article according to Claim 10 in which the sol gel alumina particles each comprise a multitude of crystallites having a diameter of from about 0.4 micron or less.

12. An abrasive article according to Claim 10 in which up to about 80% by volume of the abrasive particles are provided by fused alumina particles.

13. An abrasive article according to Claim 10 in which the alumina bubbles have a mesh size of from about 10 to about 200 mesh.

14. An abrasive article according to Claim 1 in the form of an abrasive wheel having a substantially uniform structure throughout.

15. An abrasive article according to Claim 10 in the form of an abrasive wheel having a substantially uniform structure throughout.

16. An abrasive article according to Claim 11 in the form of an abrasive wheel having a substantially uniform structure throughout.

1 17. A method of forming an abrasive article
2 which comprises:
3 A. forming a uniform mixture comprising:
4 (a) at least about 30% of the total
5 particulate volume is provided by
6 abrasive particles, comprising at
7 least about 30% of the total
8 particulate volume of particles of
9 sintered sol gel abrasive;
10 (b) friable filler particles; and
11 (c) a resinous bond in which the particles are
12 mounted and held;
13 B. shaping the mixture into that of the desired article;
14 and
15 C. curing the resin bond.

1 18. A method of forming an abrasive article
2 which comprises:
3 A. forming a uniform mixture comprising:
4 (a) abrasive particles comprising from about 20 to
5 about 80% of the volume of particulate matter
6 in the article of sintered, seeded sol gel
7 alumina particles;
8 (b) from about 20 to about 70% of the volume of
9 particulate matter in the article of alumina
10 bubbles; and
11 (c) a phenolic bonding resin.
12 B. shaping the mixture into the form of the desired
13 article; and
14 C. curing the resin bond.

J.W.B.